What is a Arteriovenous Fistula? (AVF)

A fistula is made by joining a vein and an artery together under your skin. The surgeon usually places the fistula in your arm. When this is done, blood from your artery will pass through your veins causing them to become stronger and larger. This makes your veins more suitable for the insertion of special needles required for haemodialysis treatment. An AVF is the preferred choice of dialysis access as there is evidence of longer term patency improved flow rates and fewer complications than other methods.

Why do I need a fistula?

Haemodialysis removes waste and fluid from the blood by using a machine with a dialyser, also known as an artificial kidney. As a patient on haemodialysis, you will require this treatment 3 times per week for about 4 hours each time. Before haemodialysis can be performed, you need to have a minor operation to create a fistula or 'access' which will allow your blood to be carried to and from the dialyser (artificial kidney).

How is the fistula used?

The fistula is used by inserting two needles at every haemodialysis session. The tubes which carry blood around the dialysis machine are attached to the needles. Your blood is then removed from your body through one of these needles, passed through the dialyser, where the waste products are removed from your blood. The blood is then returned to your body through the second needle. The needles and the tubing of the dialysis machine only contain a small amount of blood at any one time, therefore the amount of blood outside your body is minimal. Your fistula may not be used for the initial period to allow it to heal and mature (approx 8-10 weeks).

Complications of an AVF may include:
- Non-development of the Fistula
- Poor blood flow caused by clotting
- Aneurysm Formation (can be caused by repeated needle puncturing)
- Steal syndrome (pain, oedema, coldness or "pins and needles" as blood is "stolen" from the hand as a result of the fistula)

What preparation do I need before having a fistula?

The following preparations will be carried out before having a fistula placed in theatre:

1. Bloods will be taken by the Nurse / Doctor
2. Chest x-ray and ECG (tracing of your heart) may be performed
3. Duplex scan to assess the veins and arteries in your arm
4. You will be fasting from 12 mid night the night before surgery
5. You will be asked by the doctor to sign a consent form to give permission for surgery.

The wound

The sutures or clips in the wound will remain in place for 7 - 10 days and will then be removed by the nurse. It is important to keep the wound dry and covered with a sterile dressing for 24 hours after surgery. Once the wound has healed you will no longer require a dressing.

Arm elevation

For the first few days after surgery your arm must be elevated to avoid swelling. This may sometimes occur and it is nothing to be alarmed about. At night it is advisable to keep your arm raised on pillows.

Exercises

The following exercises are designed to assist in the development of arteriovenous fistula. The exercise should begin approximately one week after access formation when the swelling in the arm has reduced.

Holding a tennis ball or soft sponge ball in your fistula hand, allow your arm to hang in a down position at the side of your body. Squeeze the ball or sponge 20 times and then relax. Repeat again several times. Repeat these steps about five times a day. Continue this exercise until your fistula is well matured / developed.

Palpating the "Thrill"

At the point in your arm where the fistula has been created, the blood is caused to "rush". By placing the fingers of your non-fistula hand over the wound you will be able
to feel this rush. This sensation is called the "thrill". It is a sign that your fistula is functioning. You should check your fistula every morning and evening to ensure that the "thrill" is present. If it is not, contact your medical team immediately.

In the first couple of weeks after surgery the "thrill" may not always be felt. The nurse looking after you will be able to check that your fistula is working by placing a stethoscope over the wound and listening to the sound of the blood rushing. This sound is called the "bruit".

**Discharge Information**

The following information is important to remember in order to ensure your fistula stays working for the longest time possible (years).

- Do not wear constrictive clothing or watch straps on the fistula arm
- Avoid trauma to the fistula arm such as cuts and abrasions
- Do not allow anyone to take blood samples, blood pressure or put an IV cannula (drip) on your fistula arm.
- Avoid dehydration. This may occur if you loose excessive amounts of fluid, for example if you develop diarrhoea, or are unwell and unable to drink your fluid allowance.
- Maintain a high standard of hygiene. It is preferable to have a daily shower.

Before dialysis in the unit, your fistula arm must be washed well up to the elbow with soap and water

- Should you develop any signs of infection e.g. redness, swelling, pain, tenderness or discharge from fistula, you should contact your dialysis unit immediately
- Don’t sleep with your fistula arm under your head or body
- Don’t lift heavy objects or put pressure on your access arm
- If your fistula starts bleeding, apply pressure to the fistula site until bleeding stops and contact your unit immediately.
- During your dialysis treatment your fistula should be in view of nursing staff at all times in order to monitor needle position.

**Contact Phone Numbers**

If you have any other problems or concerns regarding your fistula, please do not hesitate to contact one of the numbers listed below:

St. Martins Dialysis Unit: (01) 8092730
St. Peters Dialysis Unit: (01) 8092723

Renal Unit, Beaumont Hospital. Nov. 2006
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